

Explaining differences in reading motivation between immigrant and native students: The role
of parental involvement

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Abstract

Immigrant students usually report high levels of academic interest and motivation compared to their native peers. Given the important role that parents play in fostering their children's academic motivation, this article focuses on aspects of parental involvement and analyzes possible mediator effects on the students' reading motivation and achievement using structural equation modeling. The analyses were conducted with data from $N = 891$ Swiss fourth-graders and their families. Immigrant students received less emotional support from their parents, although the latter had significantly higher expectations for their child's reading achievement. Furthermore, the three aspects of parental involvement investigated had a significant impact on the development of reading motivation. In mediation analyses, just one of the 12 effects tested appeared to be a mediation effect. Further research is needed to explain differences in motivation between immigrant and native students.

Keywords: reading motivation, reading achievement, immigrant and native students, parental homework support, and parental expectations.

1. Introduction

Surprisingly, even though immigrant students generally perform less well at school than their indigenous classmates (e.g., OECD, 2001; Schwippert, Wendt, & Tarelli, 2012), they are not necessarily less motivated. In several countries, immigrant students in fact reported higher motivation (Stanat & Christensen, 2006; Stanat, Segeritz, & Christensen, 2010¹). One explanation for this might be immigrants' positive disposition toward school, which provides professional opportunities and thus motivation to succeed (e.g., St. Hilaire, 2002). In the literature, this phenomenon is called *immigrant optimism*, which means that migration (if economically motivated) is generally related to the hope of a better life (Kao & Tienda, 1995; Relikowski, Yilmaz, & Blossfeld, 2012). Especially parents from countries with low access to higher education put their hopes in their child's educational opportunities in the host country. A positive selection of highly motivated persons can also be assumed, given the costs that are associated with migration (e.g., loss of social network). All these circumstances might explain immigrant students' high motivation to succeed (Stanat, 2006). Yet, with the exception of Hartmann, McElvany, & Gebauer, 2012, there are no empirical studies analyzing parental factors that might explain differences in motivation between immigrant and native students. Based on the assumption that parents play an important role in fostering their child's academic motivation (e.g., Baker, 2003; Grolnick & Slowiaczek, 1994), this article investigates whether parental involvement differs significantly between immigrant and native parents as well as whether general parental expectations and specific behavior during homework support mediate differences in reading outcomes between immigrant and native students. For this purpose, data were analyzed from a recent reading intervention study in Switzerland. The findings provide insights into the differential conditions motivating immigrant and native students in reading development.

¹ The results reported here apply primarily to mathematics; the same findings have yet to be confirmed for reading (cf. Artelt, Baumert, Julius-McElvany, & Peschar, 2003).

The relationship between parental involvement and student motivation

It is widely accepted that parents play an important role in fostering their child's academic motivation and success. Several studies demonstrated that parental involvement generally has positive effects on children's learning and academic success (e.g., Hill & Taylor, 2004; Hoover-Dempsey & Sandler, 1997; Jeynes, 2005). The same positive effects are observed for children with an immigrant background (see the meta-analysis of Jeynes, 2003). Parental support may be both skill-related and motivational. In this article, the focus lies on motivational support—which we consider to be the family's primary task—rather than on instructing the child. In their review, Gonzalez-DeHass, Willems, and Holbein (2005) reported a positive relationship between parental involvement and the following motivational constructs: school engagement, intrinsic/extrinsic motivation, autonomy, self-regulation, mastery goal orientation, and motivation to read. Other studies are more cautious and note that parental involvement (i.e., parent-school contact concerning students' problems at school) may be negatively related to students' motivation (Fan & Williams, 2010). Thus, even when parents are involved in educational and school issues, their involvement does not always benefit the academic success and motivation of their child.

Studies on homework support reveal similar findings: The extent of parents' involvement is not indicative of academic success (Pomerantz, Moorman, & Litwack, 2007). Rather, qualitative aspects of parental involvement in education and homework support represent more reliable indicators of beneficial support. Recent studies showed that some parental behavior such as autonomy support is more beneficial than is control or interference (Dumont, et al., 2012; Grolnick, 2003; Ng, Kenney-Benson, & Pomerantz, 2004; Niggli, Trautwein, Schnyder, Lüdtke, & Neumann, 2007)². Autonomy support allows children to solve

² A recent study by Karbach, Gottschling, Spengler, Hegewald, and Spinath (2013) confirmed the negative impact of parental control on academic achievement, although it did not find autonomy support to have a positive impact.

challenging problems on their own, which gives them the feeling of being in charge and competent (Deci & Ryan, 2002), whereas control and interference undermine this positive experience.

Jeynes (2010) found the more subtle aspects of parental involvement rather than overt actions to be meaningful in fostering positive student outcome. He concluded that factors such as strong parental expectations (e.g., for high grades and academic accomplishments), high-quality parent-child communication (e.g., reciprocal communication rather than one-sided questioning), and a positive parental style (i.e., high level of love and support and a beneficial degree of discipline and structure) define parental involvement that is truly beneficial for student outcomes. In line with Jeynes (2010), the important role of aspirations and expectations has been widely confirmed (e.g., Davis-Kean, 2005; Kaplan, Liu, & Kaplan, 2001; Neuenschwander, Vida, Garrett, & Eccles, 2007). Meta-analytic research even found parents' expectations to be the most crucial component of their involvement (Jeynes, 2005). However, expectations that are expressed by a positive attitude toward education (e.g., parental sacrifice to save for the child's college education) probably have more impact than expectations that explicitly push the child to certain achievement levels (Jeynes, 2010; Zellman & Waterman, 1998). Similarly, Marchant, Paulson, and Rothlisberg (2001) demonstrated that students' perceptions of their parents' values toward achievement had the strongest relationship with both motivation and competence. Thus, students whose parents considered achievement a worthwhile effort more likely showed higher motivation than others.

The relation between parental involvement and *reading* motivation in particular has not been investigated to the same extent as academic motivation in general. However, Baker (2003) studied the role of parents of struggling readers and concluded that supportive home environments may foster reading motivation (cf. Leseman & de Jong, 1998; Sénéchal, 2006). In her study, home experiences with print (i.e., availability of reading materials, parental

reading behavior, and the frequency of reading to the child), parents' perspectives and beliefs, as well as the affective quality of home literacy interactions were found to be strongly associated with the child's reading motivation. Parents who considered literacy as a source of entertainment rather than as a skill to be acquired more likely provided opportunities for their children to adopt the same perspective (e.g., Sonnenschein, Baker, Serpell, & Schmidt, 2000), and their children showed higher scores in motivation to read (Baker & Scher, 2002). In Sonnenschein and Munsterman's (2002) study, affective quality of literacy interactions at kindergarten age predicted self-reported reading motivation in first and second grade. Thus, parents who offer shared reading experiences in a supportive context are able to influence their child's motivation to read in subsequent years. Although these studies focused primarily on young children, there is evidence that parental support for reading continues to relate positively to reading motivation in adolescence (Klauda, 2009). All in all, research findings showed that parents have a distinct impact on their child's motivation. However, dimensions of parental involvement are broad and their effects on student motivation differential. What can be said is that children's reading outcomes are impacted most meaningfully by the qualitative and more subtle aspects of parental involvement in home reading experiences, such as interest in the child's reading, emotional support, the absence of interfering behavior, and positive expectations for the child's future academic success.

Immigrant background: Are immigrant parents differently involved in their child's schooling and reading?

In the above section, we focused on *process characteristics* by analyzing different forms of parental involvement and their impact on student outcomes. Beyond this, we may question whether immigrant background as a *family status variable* potentially has differential effects on parental involvement. A number of studies found differences in some aspects of parental involvement in the US. Kao and Tienda (1995), who investigated Asian, African, Hispanic,

and White students, found that immigrants in general participated significantly less often in school activities but attended parent-teacher meetings significantly more often. Immigrant parents were also more concerned with allocating time to homework, whereas native parents more often talked about school experiences with their child. Those results are consistent with Huntsinger and Jose (2009), who found that Chinese American parents were less involved than European American parents in school activities but were more involved in explicitly teaching their children at home (cf. Mau, 1997). A possible explanation for this reluctant participation in school activities could be the lack of familiarity with the host school system (Relikowski et al., 2012). In contrast to these findings, Lee and Bowen (2006) found no significant differences between African American, Hispanic, and European American parents regarding diverse aspects of homework involvement. Comparable studies from Europe that differentiate according to cultural background are not known to the authors.

Furthermore, some studies examined parental academic beliefs and involvement in homework in the context of cultural diversity. Contrary to in U.S. culture, home teaching methods in Asian culture are more drill and practice-oriented, and encouraging comments are rarely given (Huntsinger & Jose, 2009). In general, individualistic societies seem to place greater emphasis on parental autonomy support (Fuligni, 1998), which is assumed to influence the students' motivation in a positive way (Deci & Ryan, 2002). In Dumont et al.'s (2012) European study, the native students reported significantly more parental support and more frequently perceived their parents as being competent than did immigrants. However, with another sample, the authors found that immigrant students perceived not only less parental support during homework but also less parental interference³. Thus, against the background of studies with Asian immigrants (e.g., Huntsinger & Jose, 2009), there is evidence for cultural differences in parental involvement. However, it is difficult to generalize findings for immigrants.

³ The cultural background of immigrants is not indicated in this publication.

Some studies have shown that immigrants have higher educational expectations for their children, which in general have a positive impact on motivation as well (e.g., Kao & Tienda, 1995; Mau, 1997; Portes & Rumbaut, 2006). Yamamoto and Holloway (2010), however, reported in their meta-analysis that the association of parental expectations with student outcomes is weaker for ethnic minority families than for European American families. Similarly, a recent German study reported that immigrant parents usually have very high educational expectations for their children (Relikowski et al., 2012; cf. Stanat et al., 2010) but found a pronounced discrepancy between Turkish parents' ambitious educational aims and their child's academic achievement. Lee and Bowen (2006), in contrast, reported no differences in educational expectations among three ethnic groups (African American, Hispanic/Latino, and European American). The inconsistent findings on differences in parental expectations based on immigrant status/ethnicity might be due to different operationalizations of parental expectations.

When analyzing the influence of immigrant background on student outcomes, it is important to consider further aspects of family background that might be confounded with migration status. There is evidence that immigrants usually have a less privileged socio-economic situation, which might be associated with lack of resources and knowledge to foster their child academically (e.g., Colman, 1988; Wingard & Forsberg, 2009). Davis-Kean (2005) identified parent education and family income to be indirectly related to children's academic achievement through parents' beliefs and behaviors. Yet the process of these relations differed by ethnic group. To date, however, no theory has been able to grasp the complexity of social background variables influencing student achievement (cf. Jeynes, 2002).

In sum, the reported findings lead us to suggest differential effects of parental involvement on the development of academic motivation due to immigrant or cultural background. The most widely discussed aspects of parental involvement are parental expectations and homework

support. However, the studies mentioned concern parental involvement in schooling, not specifically parental support in reading.

1.3 The present study

Based on previous research about effects of parental involvement on student motivation, we hypothesized that differences in reading motivation between immigrant and native students are mediated by aspects of parental involvement. Thus, our study pursues an objective similar to recent work by Hartmann et al. (2012), who investigated differential effects of immigrant background on adaptive and maladaptive motivational dimensions but could not verify the postulated mediation effects for parental autonomy support and control. In the present study, however, we focused on three other aspects of parental involvement that have also been widely investigated in educational research: (a) emotional support and (b) interference during homework (parental behavior measures), and (c) parental expectations in terms of beliefs about the future educational achievement of their child. Specifically, we addressed the following research questions: (1) Does immigrant background predict parental involvement, that is, parents' behavior during homework support and their educational expectations when controlling for parents' educational level and student's sex and grade in reading? (2) Does parental involvement predict educational outcomes such as reading motivation and comprehension when controlling for parents' educational level and student's sex and grade in reading? (3) Does parental involvement mediate differences in reading outcomes (different dimensions of motivation and comprehension) between immigrant and native students? Given the previous findings, we hypothesized that differences in motivation (enjoyment/curiosity) between immigrants and natives would be mediated by parental expectations, which are higher among immigrant parents. On the basis of European research, we hypothesized that low interference of immigrant parents positively mediates the relationship between immigrant background and motivation (Dumont et al., 2012). Albeit unaware of any research on the

association between emotional support and immigrant background, we hypothesized that this aspect of parental involvement would mediate differences in motivation as well. Because cognitive outcomes are relevant, we analyzed reading comprehension as a further outcome variable. Figure 1 presents the structural equation model underlying the analyses conducted in this study. For simplification, child and family factors were represented as an entity but were of course considered separately when analyzing effects.

Please insert Figure 1 about here

2. Method

2.1 Participants

Analyses were conducted with data from $N = 891$ fourth-graders and their families from the German-speaking part of Switzerland. This sample was part of an intervention study to promote reading motivation and comprehension. $N = 218$ students (13 of the 54 classes involved) participated in a reading program in which parents assisted their children in doing their reading homework. For this purpose, the parents participated in a brief two-evening training session for homework support (for further details, see Villiger, Niggli, Wandeler, & Kutzelnann, 2012). $N = 453$ students participated in a reading program at school that did not involve their families (for further details about the two intervention programs, see Villiger, Niggli, Wandeler, Watermann, & Kutzelnann, 2010). The control group consisted of $N = 220$ students. Because the analysis focused on aspects such as parental behavior that were addressed during parental training sessions, participation in the session was controlled for. 96.2% of the parents responded to the parents' questionnaire. Students and parents with French as a first language were excluded from the sample: Given their special status in the bilingual region (German/French), those students would have formed a distinct population from native German speakers and immigrant students but too small to include in the analyses.

2.2 Procedure

For this study, we used data from a reading intervention study that took place during the school years 2006/07 and 2007/08. Most of the data were collected at the beginning of the school year, apart from the reading grade (mid-year fourth grade) and the post-test measures of reading outcome (motivation and comprehension at the end of the school year). The assessments were administered by teachers (student questionnaire) and project staff members (reading comprehension test) in regular class time. Parents received the parent questionnaire from their child via the school and completed it at home.

2.3 Measures

2.3.1 Dependent variables: Reading motivation and comprehension

Reading motivation was assessed with the German reading motivation questionnaire by Bonerad and Möller (2005), which is based partly on Wigfield and Guthrie's (1997) Motivation for Reading Questionnaire. The questionnaire covers several dimensions of motivation; the present analyses focused on reading enjoyment, reading curiosity, and reading anxiety. 1. *Reading enjoyment*. This component concerns the pleasure of reading for its own sake (intrinsic motivation). Eight items tapped reading enjoyment (e.g., "It's fun to read books"; "If I had time, I would read more"; 8 items, $\alpha = .89 - .94$). 2. *Reading curiosity*. This motivational dimension refers to the content of the text and reflects a desire to learn more about the topic. Thus, reading curiosity signifies the evoked (or pre-existing) interest in a topic that leads to reading activity (cf. situational interest; Schiefele, 1999). The scale comprised three items (e.g., "I read in order to learn something new about topics that interest me"; "If a teacher talks about something interesting in a lesson, I may well read more about it"; $\alpha = .71 - .79$). 3. *Reading anxiety*. This scale measures the extent to which an individual is anxious about not being able to read successfully (e.g., "While I'm reading, I often worry whether I will understand everything"; 3 items; $\alpha = .74 - .82$). We included this maladaptive

dimension of motivation in our analyses in order to take into account the multidimensionality of reading motivation (cf. Martin, 2007).

Reading achievement was measured with a standardized reading comprehension test for German language (ELFE 1-6 by Lenhard & Schneider, 2006). In keeping with interactionist models of reading comprehension (van Dijk & Kintsch, 1983), this test assesses reading comprehension on the word level (decoding, word recognition), the sentence level (semantic reading, syntactic competence), and the text level (retrieving information, integrating information, deductive reasoning). Interactionist models assume that high- and low-level reading processes take place simultaneously and interact with each other. For the present study, the total score of the test was used.

2.3.2 Mediator variables: Parental involvement

Aspects of parental involvement were assessed by means of both the student and parent questionnaire: The student questionnaire measured parental behavior as perceived by the children during homework on the following two dimensions: emotional support and interference. The *emotional support* scale measured the positive relation between the parent and the child in situations of academic difficulties (e.g., “When I get a bad grade at school, my parents encourage me on the following test”; 6 items, $\alpha = .75 - .82$). The items of the scale were drawn from Wild and Remy (2001) and Helmke, Schrader, and Hosenfeld (2004). Some of the items concern experiences related to German lessons. The *interference* scale measured the extent to which parents helped their child complete homework without being asked (e.g., “My parents sometimes help me in German homework, even though I do not explicitly asked them to”; 5 items, $\alpha = .68 - .73$). *Parental expectations* entailed parents’ expectations regarding their child’s general reading proficiency and were assessed by means of one item adapted from Helmke et al.’s (2004) parent questionnaire (e.g., “What expectations do you

have towards your child's reading proficiency?" with five possible answers ranging from 1 = "It is sufficient if my child gets by in reading" to 5 = „He/she should be a top reader“).

2.3.3 Control variables: Family background and individual factors

Immigrant background. Immigrant background was defined by first language (the language most often spoken at home) other than German. Immigrant students accounted for 18.5% of the whole sample. 2.5% were originally from southwestern Europe (Italy, Spain, Portugal), 8.0% from southeastern Europe (Ex-Yugoslavia), and 3.6% were from other countries (missing: 4.4%).

Parental educational background. This variable was assessed for mothers and fathers separately, with the highest level of education of either parent being included in the analyses. The seven response categories were collapsed into three broader categories: (1) no education; basic or vocational education (40.6%); (2) high school education (28.2%); (3) college or university education (24.8%) (missing: 6.4%). Two dummy variables were created for the subsequent analyses (low and high educational level, medium level as the reference group).

Sex. Sex was controlled for because earlier research showed that parents' involvement in boys' homework was more intrusive (e.g., Niggli et al., 2007).

Reading Grade. As a feedback component, the reading grade is important for students' motivation. This variable was reported by teachers for the end of the first semester of fourth grade. The highest possible grade was 6; the lowest was 1. Thus, high scores indicate desirable learning outcomes.

Participation in parental training. Given that some parents of the sample took part in a parental training session focusing on assisting their child in reading homework, their participation was controlled for. The training session took place on two evenings. On the first evening, parents were shown videos in which theoretical aspects of support were illustrated in concrete homework situations. On the second, the children also participated, which facilitated

training of pre- and post-reading communication in a semi-authentic homework situation. N = 230 parents attended at least one of two training evenings; 91.3% of them attended both.

2.4 Statistical procedure

In order to answer the research questions, structural equation models were specified, which enabled us to use latent variables and analyze indirect effects. Because the multilevel structure (individuals are nested within classrooms and schools) was not central to the research question, the nested data structure was treated as a nuisance factor (Raudenbush & Bryk, 2002). Accordingly, the standard errors of the regression coefficients were adjusted for class membership with the “type=complex” feature of Mplus 6.1 (Muthén & Muthén, 1998–2011). Missing values were estimated with the corresponding tool in Mplus 6.1 (a model-based full information maximum likelihood estimation approach). The percentage of missing values ranged from 0% to 8.3% (2.6% on average).

In order to look for differential parental involvement (first research question), we regressed different aspects of parental involvement on the immigrant background factor by controlling for diverse other relevant variables (Model 1). To test our second and third research questions, we predicted student outcomes on the basis of family background variables (Model 2), estimating the total effect of these variables on educational outcomes. In Model 3, which represents the full mediation model, we then included the dimensions of parental involvement as mediators and estimated indirect effects. This procedure follows recent work on mediation analysis (Hayes, 2009), which recommends quantifying the indirect effect rather than following the causal steps method developed by Baron and Kenny (1986). Thus, indirect effects were calculated for each mediator. Because of the number of significance tests, this procedure entailed the problem of alpha inflation; we hence adjusted the alpha values using the Bonferroni correction (Shaffer, 1995). In our analyses, we adjusted for prior differences

between students with respect to the educational outcome measures. The regression coefficients we determined therefore represent the impact of measures on change.

Results

3.1 Descriptive results

Table 1 shows the means, standard deviations, and intercorrelations of the variables used in this study.

Please insert Table 1 about here

The present data partly confirmed our assumption about immigrant students' higher scores in motivation. Intercorrelations showed that this was the case for reading curiosity, although the same association could not be found for reading enjoyment. In terms of achievement, our data showed that immigrant students had significantly lower reading grades and performed less well in a reading comprehension test than native students did, at least at T1 (see also mean comparison between immigrants and natives in Table A, Appendix). Parents of immigrant students significantly more often had a low educational background, which indicates the necessity to control for educational background in further analyses. Compared to girls, boys appeared to be the losers in several respects: They reported significantly less emotional support but more parental interference during homework. Moreover, they were significantly less motivated (reading enjoyment and curiosity) and had significantly lower scores in reading comprehension. In general, interference was negatively associated with reading achievement. These results are largely consistent with previous studies (e.g., Niggli et al., 2007; OECD, 2001). With respect to parental involvement, the variables interference and emotional support were positively correlated with each other. Parental expectations, in contrast, were negatively related with interference, while parental expectations and emotional support were not associated at all. With respect to motivational variables, reading enjoyment and curiosity were significantly correlated; surprisingly, curiosity was also weakly correlated with anxiety.

Enjoyment and anxiety, however, were not correlated. Family intervention was not associated with any of the variables.

3.2 Results from regression analyses

3.2.1 Does immigrant background predict parental involvement?

When addressing our first research question, we investigated in Model 1 whether immigrant background predicted parental involvement when controlling for sex, parental educational background, and grade in reading. Furthermore, we controlled for parents' participation in a training session, which aimed at enhancing positive homework support and reducing negative behavior in the form of interference and control (Table 2).

Please insert Table 2 about here

Results showed that immigrant background was slightly negatively associated with emotional support and positively associated with parental expectations. These findings indicate that immigrant students were less likely to receive emotional support from their parents, but their parents had significantly higher expectations for their reading achievement. With respect to interference during homework, no significant differences were found between immigrant and native parents. Besides immigrant background, the grade in reading appeared to be a strong predictor of parental expectations and interference, which means that low achievers reported significantly more interference, while their parents had significantly lower expectations for their reading achievement. Family training had no significant impact on any of the parental involvement variables.

3.2.2 Does parental involvement predict educational outcomes such as reading motivation and comprehension?

In Model 2, the educational outcomes (reading motivation and comprehension) were regressed on the immigrant background variable while controlling for other family and child

factors; in Model 3, the mediator variables were included as well (Table 3). The regression analyses of Model 3 comply with the conceptual model depicted in Figure 1. The coefficients report direct effects.

Please insert Table 3 about here

During the period of investigation, parental interference had a slightly negative impact on the development of reading enjoyment ($\beta = -.08, p < .05$) but a positive impact on reading anxiety ($\beta = .12, p < .05$). However, interference did not directly affect the development of reading curiosity or of reading comprehension. Whereas emotional support predicted the development of the two positive motivational dimensions, reading enjoyment ($\beta = .13, p < .001$) and curiosity ($\beta = .26, p < .001$), it had no impact on the development of reading anxiety and reading comprehension. Finally, parental expectations affected only the development of reading curiosity ($\beta = .10, p < .05$), but no other outcome variable.

As expected, immigrant background was positively associated with the development of reading enjoyment ($\beta = .08, p < .01$) and reading curiosity ($\beta = .07, p < .05$), and negatively associated with the development of reading comprehension ($\beta = -.05, p < .05$). Students with an immigrant background thus reported increased motivation during the period of investigation, but showed less improvement in the reading comprehension test than did native students. With respect to reading anxiety, no differences were found between immigrant and native students. Furthermore, the longitudinal data provided evidence that the initial reading measures had an influence on parental involvement. Thus, parental interference was especially related to reading anxiety ($\beta = .20, p < .001$) and low reading comprehension ($\beta = -.12, p < .05$). With respect to emotional support, students with initially high reading enjoyment and reading curiosity were more likely to report receiving emotional support from their parents ($\beta = .15, p < .01/\beta = .15, p < .001$). Moreover, the initial reading enjoyment ($\beta = .10, p < .05$) and reading comprehension ($\beta = .09, p < .05$) had a significant and positive impact on the parents' expectations toward reading outcomes.

Emotional support and interference were specified as latent variables, whereas parental expectations were measured with a single item. Because some mediators were correlated with each other (interference and emotional support), correlations among the latent variables were freely estimated. The full model (Model 3), which is showed in Figure 1, had a good fit for each educational outcome measure: reading enjoyment: χ^2 ($df = 411$, $N = 891$) = 877.38, CFI = .94, RMSEA = .038, SRMR = .038; reading curiosity: χ^2 ($df = 203$, $N = 891$) = 377.35, CFI = .94, RMSEA = .033, SRMR = .036; reading anxiety: χ^2 ($df = 206$, $N = 891$) = 434.76, CFI = .93, RMSEA = .038, SRMR = .043; reading comprehension: χ^2 ($df = 127$, $N = 891$) = 316.63, CFI = .93, RMSEA = .044, SRMR = .048.

3.2.3 *Does parental involvement mediate differences in reading outcomes between immigrant and native students?*

In order to address the third research question, specific indirect effects were calculated for four dependent variables (see Table 4).

Please insert Table 4 about here

Of the 12 potential indirect effects, one was statistically significant: Differences in reading curiosity between natives and immigrants were mediated via emotional support ($\beta = .03$, $p < .016$). On the basis of these analyses, our hypothesis of mediation effects between immigrant status and reading outcomes via parental involvement is far from being confirmed.

Discussion

4.1 *Discussion of the results*

The central question guiding our analyses was whether parental involvement mediates the association between immigrant background and educational outcomes (motivation in particular). Our analyses in the domain of reading partly confirmed previous findings in mathematics showing that immigrant students are usually more motivated than native students

while performing less well (OECD, 2001; Stanat & Christensen, 2006). Concretely, immigrant students in our study reported to be more curious about reading yet attained lower scores in reading comprehension than native students. Taken together, the results confirmed that there are differences between immigrant and native students. Furthermore, our assumption of differences in parental involvement between immigrant and native parents was confirmed for the variables emotional support and parental expectations. With respect to parental expectations, this finding is largely consistent with previous research (Kao & Tienda, 1995; Relikowski et al., 2012, Stanat et al., 2010). Higher parental expectations appear to be a factor that immigrants share regardless of cultural background and that might have a positive impact on the students' motivation. Yet it remains open how those expectations are translated into behavior. If pressure or unrealistic aspirations come along with high expectations, negative impacts can of course be expected. Emotional support was reported significantly less often by immigrants than by natives. Immigration alone unlikely explains this difference, but factors such as cultural background (cf. Huntsinger & Jose, 2009) or family culture are probably just as relevant (cf. Table 2). Furthermore, the significant differences in emotional support reported by boys and girls show that perceptions and/or needs may differ according to sex. It is evident that the quality of relation plays an important role as well.

What impact does parental involvement have on reading outcomes? Our second research question investigated the relevance of parental expectations, emotional support, and interference for reading motivation and comprehension. Contrary to previous studies (Hill and Taylor, 2004; Hoover-Dempsey & Sandler, 1997; Jeynes, 2005), the influence of parental involvement on student achievement (reading comprehension, in our case) could not be confirmed with the present data. Other factors of parental involvement than those used in this study (e.g., skill-related support) may have had more impact. With regard to motivation, the impact of parental involvement differs according to motivational dimensions. In sum, the findings highlight the role that parents play in reinforcing their child's motivation. Emotional

support in particular appeared to be most beneficial for the development of reading enjoyment and curiosity. On the other hand, parental behavior such as interference can negatively affect the development of reading enjoyment while simultaneously increasing reading anxiety.

These results are largely consistent with previous research and confirm the ambivalent role that parental homework support may play (Niggli et al., 2007). Furthermore, the influence of grades on parental involvement is considerable: Our analyses revealed that good grades in reading lead parents to have higher expectations for reading achievement, whereas bad grades are more likely to elicit parental interference (see Model 1). However, grades do not predict emotional support, presumably because emotional support depends on the child's personal condition rather than on any measure of achievement.

Finally, although we found small associations between parental involvement and immigrant background, our hypothesis that the relationship between immigrant background and reading outcomes would be mediated by parental involvement could not be confirmed (cf. Hartmann et al., 2012). Immigrant background had a direct positive effect on reading curiosity and an indirect negative effect via parental emotional support. How is this finding to be interpreted? If immigrant parents were to provide more emotional support, the increase in their children's reading curiosity would potentially be even greater. Thus, we can assume that immigrant parents could contribute to the development of their child's motivation by paying more attention to the child's need for emotional support. Surprisingly, however, although immigrants perceived significantly less emotional support by their parents, their reading enjoyment and curiosity nevertheless increased significantly over time. This result suggests that cultural differences underlie the perception and need of emotional support.

Another unexpected result was the inability to confirm our hypothesis that parental expectations are a mediator because of the distinct differences in the expectations of immigrant and native parents. This might be due to the fact that expectations that are explicitly centered on achievement (as operationalized in our study) do not necessarily have a

positive impact on educational outcome (and on motivation in particular) as a consequence of possible associated pressure (Jeynes, 2010; Zellman & Waterman, 1998). Future research should investigate the way such expectations are communicated, which might be relevant for determining their impact on educational outcomes. As suggested by Jeynes (2010), it is possible that expectations that focus on communicating the value of education in general—rather than focusing on results—might have a greater impact; their possible role as a mediator should thus be reanalyzed in this context. If a comparison between immigrant and native parents' expectations still shows significant differences (according to the concept of immigrant optimism, immigrants tend to value education more highly than natives do; cf. Kao & Tienda, 1995), there will be relevant implications for native parents' support of their children. Concretely, communicating the value of education could be rediscovered by native parents in Western culture in order to increase their children's motivation for learning (Davis-Kean, 2005; Jeynes, 2005; 2010).

In sum, our mediation analyses could not satisfactorily explain differences in reading outcomes between immigrant and native students. However, other aspects (e.g., parental esteem of education) or aspects other than parental involvement should be considered in order to explain why immigrant students are comparatively more curious about reading than natives.

4.2 *Limitations of the study*

It should be noted that during the period of data collection, most of the students were involved in a reading intervention program at school that aimed at enhancing reading motivation and/or comprehension. Although this study focused on the parental influence on the students' reading outcomes and thus did not concern school-related effects, changes in motivation and achievement during the period of investigation might be due to intervention effects. However, because changes in educational outcomes occur naturally (even in the control group), such

intervention effects need to be relativized. These potential influences might nonetheless explain some surprising effects such as the significant increase in immigrant students' reading comprehension over time.

Furthermore, in this study, immigrant background was determined by the language spoken most frequently at home. Previous work highlighted the need for more differentiation in measuring immigrant background (cf. Segeritz, Walter, & Stanat, 2010) and pointed out that not only the generational status of immigrants but also the extent of inner-ethnic relations or relations with the host culture should be taken into account in order to capture facets of immigrant life more precisely. Unfortunately, those factors were not available in the present data set. Another problem faced by studies that address immigrant background is that immigration status must be disentangled from cultural aspects (ethnic aspects as well as aspects of family culture that are independent of ethnicity; cf. Gutiérrez & Rogoff, 2003). However, this would require large samples and detailed data about parental involvement or student-perceived parental behavior, which are not always available.

Finally, the present study considered only three aspects of parental involvement, all essentially concerning homework support. Effects of parental involvement could of course be analyzed more extensively (e.g., with more specific parenting processes). Also, aspects that are more directly related to the child's reading should be taken into account (e.g., parent-child communication about reading, parents' interest in their child's reading, etc.; Loera, Rueda, & Nakamoto, 2011). More systematic analyses that include further aspects of parental involvement are thus necessary to unveil potential mediation effects.

4.3 Conclusions

The present study highlights the impact that parents can have on fostering their child's reading motivation. Parental factors such as academic expectations, emotional support, or lack of interference during homework may positively influence children's literacy development.

Moreover, because parents are usually willing to help their children succeed academically (Jeynes, 2005), schools might foster and exploit such parent/home resources by providing parents with strategies for motivational support. However, awareness needs to be increased of existing differences in parental support between immigrants and natives. The benefit of emotional support for academic development might not be widely recognized, especially within immigrant families. Furthermore, our study underscores the assumption that learning can be stimulated by parental expectations for academic achievement, notably when these expectations demonstrate how highly parents value education. Families in Western countries, where education is often taken for granted, might learn from immigrant families that valuing education is an important source of motivation that parents can provide.

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References

- Artelt, C., Baumert, J., Julius-McElvany, N., & Peschar, J. (2003). *Learners for life: Student approaches to learning. Results from PISA 2000*. Paris: OECD.
- Baker, L. (2003). The role of parents in motivating struggling readers. *Reading & Writing Quarterly*, 19, 87-106. doi:[10.1080/10573560308207](https://doi.org/10.1080/10573560308207)
- Baker, L. & Scher, D. (2002). Beginning readers' motivation for reading in relation to parental beliefs and home reading experiences. *Reading Psychology*, 23, 239-269.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173–1182. doi:[10.1037/0022-3514.51.6.1173](https://doi.org/10.1037/0022-3514.51.6.1173)
- Bonerad, E.-M., & Möller, J. (2005). *Ein Modell der Lesemotivation* [A model of reading motivation]. Paper presented at the 67th meeting of the Arbeitsgruppe für empirische pädagogische Forschung (AEPF), Salzburg, Austria.
- Coleman, J. S. (1988). Social capital and the creation of human capital. *American Journal of Sociology*, 94, 95-120. doi: [10.1086/228943](https://doi.org/10.1086/228943)
- Davis-Kean, P. E. (2005). The influence of parent education and family income on child achievement: The indirect role of parental expectations and the home environment. *Journal of Family Psychology*, 19 (2), 294-304. doi: [10.1037/0893-3200.19.2.294](https://doi.org/10.1037/0893-3200.19.2.294)
- Deci, E.L. & Ryan, R.M. (2002). *Handbook of self-determination research*. Rochester, NY: University of Rochester Press.
- Dumont, H., Trautwein, U., Lüdtke, O., Neumann, M. Niggli, A., & Schnyder, I. (2012). Does parental homework involvement mediate the relationship between family background and educational outcomes? *Contemporary Educational Psychology*, 37, 55-69. doi:[10.1016/j.cedpsych.2011.09.004](https://doi.org/10.1016/j.cedpsych.2011.09.004)
- Fan, W. & Williams, C. M. (2010). The effects of parental involvement on students' academic self-efficacy, engagement and intrinsic motivation. *Educational Psychology*, 30 (1), 53-74. doi: [10.1080/01443410903353302](https://doi.org/10.1080/01443410903353302)
- Fuligni, A. J. (1998). Authority, autonomy, and parent-adolescent conflict and cohesion: A study of adolescents from Mexican, Chinese, Filipino, and European backgrounds. *Developmental Psychology*, 34, 782-792. doi: [10.1037//0012-1649.34.4.782](https://doi.org/10.1037//0012-1649.34.4.782)
- Gonzalez-DeHass, A. R., Willems, P. P., & Holbein, M. F. D. (2005). Examining the relationship between parental involvement and student motivation. *Educational Psychology Review*, 17 (2), 99-123. doi: [10.1007/s10648-005-3949-7](https://doi.org/10.1007/s10648-005-3949-7)

Grolnick, W. S. (2003). *The psychology of parental control. How well-meant parenting backfires*. Mahwah, NJ: Lawrence Erlbaum Associates.

Grolnick, W.S. & Slowiaczek, M. L. (1994). Parents' involvement in children's schooling: A multidimensional conceptualization and organizational model. *Child Development*, 65, 237-252. doi: [10.2307/1131378](https://doi.org/10.2307/1131378)

Gutiérrez, K. D. & Rogoff, B. (2003). Cultural ways of learning: Individual styles or repertoires of practice. *Educational Researcher*, 32 (5), 19-25. doi: [10.3102/0013189X032005019](https://doi.org/10.3102/0013189X032005019)

Hartmann, R. M., McElvany, N., & Gebauer, M. M. (2012, April). Academic motivation of students with diverse family backgrounds and the explanatory power of parental influences. Paper presented at the meeting of the American Educational Research Association, Vancouver, BC.

Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millenium. *Communication Monographs*, 76, 408-420. doi:[10.1080/03637750903310360](https://doi.org/10.1080/03637750903310360)

Helmke, A., Schrader, F.-W. & Hosenfeld, I. (2004). Elterliche Unterstützung und Schulleistung ihrer Kinder [Parental support and academic achievement of their children]. *Bildung und Erziehung*, 57 (3), 251-277.

Hill, N. E. & Taylor, L. C. P. (2004). Parental school involvement and children's academic achievement: Pragmatics and issues. *Current Directions in Psychological Science*, 13, 161-164. doi: [10.1111/j.0963-7214.2004.00298.x](https://doi.org/10.1111/j.0963-7214.2004.00298.x)

Hoover-Dempsey, K. V., & Sandler, H. M. (1997). Why do parents become involved in their children's education? *Review of Educational Research*, 67 (1), 3-42. doi: [10.2307/1170618](https://doi.org/10.2307/1170618)

Huntsinger, & Jose (2009). Parental involvement in children's schooling: Different meanings in different cultures. *Early Childhood Research Quarterly*, 24, 398-410. doi: [10.1016/j.ecresq.2009.07.006](https://doi.org/10.1016/j.ecresq.2009.07.006)

Jeynes, W. H. (2002). The challenge of controlling for SES in social science and education research. *Educational Psychology Review*, 14 (2), 205-221. doi: [10.1023/A:1014678822410](https://doi.org/10.1023/A:1014678822410)

Jeynes, W. H. (2003). The effects of parental involvement on minority children's academic achievement. *Education and Urban Society*, 35 (2), 202-218. doi: [10.1177/0013124502239392](https://doi.org/10.1177/0013124502239392)

Jeynes, W. H. (2005). A meta-analysis of the relation of parental involvement to urban elementary school student academic achievement. *Urban Education*, 40, 237-269. doi: [10.1177/0042085905274540](https://doi.org/10.1177/0042085905274540)

- Jeynes, W. H. (2010). The salience of the subtle aspects of parental involvement and encouraging that involvement: Implications for school-based programs. *Teachers College Record*, 112 (3), 747-774.
- Kao, G. & Tienda, M. (1995). Optimism and achievement: The educational performance of immigrant youth. *Social Science Quarterly*, 76, 1-19.
- Kaplan, D. S., Liu, X., & Kaplan, H. B. (2001). Influence of parents' self-feelings and expectations on children's academic performance. *The Journal of Educational Research*, 94 (6), 360-369. doi: [10.1080/00220670109598773](https://doi.org/10.1080/00220670109598773)
- Karbach, J., Gottschling, J., Spengler, M., Hegewald, K. & Spinath, F. M. (2013). Parental involvement and general cognitive ability as predictors of domain-specific academic achievement in early adolescence. *Learning & Instruction*, 23, 43-51. doi: [10.1016/j.learninstruc.2012.09.004](https://doi.org/10.1016/j.learninstruc.2012.09.004)
- Klauda, S. L. (2009). The role of parents in adolescents' reading motivation and activity. *Educational Psychology Review*, 21, 325-363. doi:[10.1007/s10648-009-9112-0](https://doi.org/10.1007/s10648-009-9112-0)
- Lee, J.-S., & Bowen, N. K. (2006). Parent involvement, cultural capital, and the achievement gap among elementary school children. *American Educational Research Journal*, 43, 193-218.
- Lenhard, W. & Schneider, W. (2006). *ELFE 1–6. Ein Leseverständnistest für Erst- bis Sechstklässler [ELFE 1-6. A reading comprehension test for grade 1 through 6]*. Göttingen: Hogrefe.
- Leseman, P. P. M., & de Jong, P. F. (1998). Home literacy: Opportunity, instruction, cooperation and social-emotional quality predicting early reading achievement. *Reading Research Quarterly*, 33(3), 294-318. doi:[10.1598/RRQ.33.3.3](https://doi.org/10.1598/RRQ.33.3.3)
- Loera, G., Rueda, R., & Nakamoto, J. (2011). The association between parental involvement in reading and schooling and children's reading engagement in Latino families. *Literacy Research and Instruction*, 50, 133-155. doi: [10.1080/19388071003731554](https://doi.org/10.1080/19388071003731554)
- Marchant, G. J., Paulson, S. E., & Rothlisberg, B. A. (2001). Relations of middle school students' perceptions of family and school contexts with academic achievement. *Psychology in the Schools*, 38 (6), 505-519. doi: [10.1002/pits.1039.abs](https://doi.org/10.1002/pits.1039.abs)
- Martin, A. J. (2007). Examining a multidimensional model of student motivation and engagement using a construct validation approach. *British Journal of Educational Psychology*, 77, 413-33. doi: [10.1348/000709906X118036](https://doi.org/10.1348/000709906X118036)
- Mau, W. (1997). Parental influences on the high school student's academic achievement: A comparison of Asian immigrants, Asian Americans, and White Americans. *Psychology in the*

Schools, 34 (3), 267-277. doi: [10.1002/\(SICI\)1520-6807\(199707\)34:3<267::AID-PITS9>3.0.CO;2-L](https://doi.org/10.1002/(SICI)1520-6807(199707)34:3<267::AID-PITS9>3.0.CO;2-L)

Muthén, L. & Muthén, B. (1998–2011). *Mplus user's guide*. Los Angeles, CA: Muthén & Muthén.

Neuenschwander, M. P., Vida, M., Garrett, J. L., & Eccles, J. S. (2007). Parents' expectations and students' achievement in two western nations. *International Journal of Behavioral Development*, 31 (6), 594-602. doi: [10.1177/0165025407080589](https://doi.org/10.1177/0165025407080589)

Ng, F. F., Kenney-Benson, G. A. & Pomerantz, E. M. (2004). Children's achievement moderates the effects of mothers use of control and autonomy support. *Child Development*, 75 (3), 764-780. doi: 10.1111/j.1467-8624.2004.00705.x

Niggli, A., Trautwein, U., Schnyder, I., Lüdtke, O. & Neumann, M. (2007). Elterliche Unterstützung kann hilfreich sein, aber Einmischung schadet: Familiärer Hintergrund, elterliches Hausaufgabenengagement und Leistungsentwicklung [Parental homework support can be beneficial, but parental intrusion is detrimental: Family background, parental homework supervision, and performance gains]. *Psychologie in Erziehung und Unterricht*, 54 (1), 1-13.

OECD (2001). *Knowledge and Skills for Life: First Results from the OECD Programme for International Student Assessment (PISA) 2000*. Paris: OECD. doi: [10.1787/9789264195905-en](https://doi.org/10.1787/9789264195905-en)

Pomerantz, E. M., Moorman, E. A., & Litwack, S. D. (2007). The how, whom, and why of parents' involvement in children's academic lives: More is not always better. *Review of Educational Research*, 77 (3), 373-410. doi: [10.3102/003465430305567](https://doi.org/10.3102/003465430305567)

Portes, A. & Rumbaut, R. G. (2006). *Immigrant America : A portrait* (3rd ed.). Berkley : University of California Press.

Raudenbush, S.W. & Bryk, A.S. (2002). *Hierarchical linear models: Applications and data analysis methods*. Thousand Oaks, CA: Sage.

Relikowski, I., Yilmaz, E. & Blossfeld, H.-P. (2012). Wie lassen sich die hohen Bildungsaspirationen von Migranten erklären? Eine Mixed-Methods Studie zur Rolle von strukturellen Aufstiegschancen und individueller Bildungserfahrung. *Kölner Zeitschrift für Soziologie und Sozialpsychologie Sonderheft*, 52, 111-136. doi: [10.1007/978-3-658-00120-9_5](https://doi.org/10.1007/978-3-658-00120-9_5)

St. Hilaire, A. (2002). The social adaptation of children of Mexican immigrants: Educational aspirations beyond junior high school. *Social Science Quarterly*, 83, 1026-1043. doi: [10.1111/1540-6237.00131](https://doi.org/10.1111/1540-6237.00131)

- Schiefele, U. (1999). Interest and learning from text. *Scientific Studies of Reading*, 3 (3), 257-279. [doi:10.1207/s1532799xssr0303_4](https://doi.org/10.1207/s1532799xssr0303_4)
- Schwippert, K., Wendt, H. & Tarelli, I. (2012). Lesekompetenzen von Schülerinnen und Schülern mit Migrationshintergrund. Kap. VII. In: W. Bos et al. (2007). *IGLU 2011. Lesekompetenzen von Grundschulkindern in Deutschland im internationalen Vergleich [IGLU 2011. Reading skills of German primary students in an international comparison]*, 191-207. Münster: Waxmann.
- Segeritz, M., Walter, O., & Stanat, P. (2010). Muster des schulischen Erfolgs von jugendlichen Migranten in Deutschland: Evidenz für segmentierte Assimilation? [Patterns of academic success of adolescent immigrants in Germany: Evidence for segmented assimilation?] *Kölner Zeitschrift für Soziologie und Sozialpsychologie*, 61, 113-138. doi: [10.1007/s11577-010-0094-1](https://doi.org/10.1007/s11577-010-0094-1)
- Sénéchal, M. (2006). Testing the home literacy model: Parent involvement in kindergarten is differentially related to grade 4 reading comprehension, fluency, spelling, and reading for pleasure. *Scientific Studies of Reading*, 10(1): 59-87. doi: [10.1207/s1532799xssr1001_4](https://doi.org/10.1207/s1532799xssr1001_4)
- Shaffer, J. P. (1995). Multiple hypothesis testing. *Annual Review of Psychology*, 46, 561–584. doi:10.1146/annurev.psych.46.1.561
- Sonnenschein, S., Baker, L., Serpell, R., & Schmidt, D. (2000). Reading is a source of entertainment: The importance of the home perspective for children's literacy development. In: K. A. Roskos & J. F. Christie (Eds.). *Play and literacy in early childhood: research from multiple perspectives*, 125-137. Mahwah, NJ: Erlbaum.
- Sonnenschein, S., & Munsterman, K. (2002). The influence of home-based reading interactions on 5-year-olds' reading motivations and early literacy development. *Early Childhood Research Quarterly*, 17, 318-337. [doi:10.1016/S0885-2006\(02\)00167-9](https://doi.org/10.1016/S0885-2006(02)00167-9)
- Stanat, P. (2006). Disparitäten im schulischen Erfolg: Forschungsstand zur Rolle des Migrationshintergrunds [Disparities in academic success: Current state of research about the role of immigrant background]. *Unterrichtswissenschaft*, 36 (2), 98-124.
- Stanat, P. & Christensen, G. (2006). *Where immigrant students succeed – a comparative review of performance and engagement in PISA 2003*. Paris: OECD.
- Stanat, P., Segeritz, M., & Christensen, G. (2010). Schulbezogene Motivation und Aspiration von Schülerinnen und Schülern mit Migrationshintergrund. In: W. Bos, E. Klieme, & O. Köller (Eds.). *Schulische Lerngelegenheiten und Kompetenzentwicklung [Academic learning opportunities and development of competence]*. Münster: Waxmann.

van Dijk, T.A. & Kintsch, W. (1983). *Strategies of discourse comprehension*. London: Academic Press.

Villiger, C., Niggli, A., Wandeler, C. & Kutzelnann, S. (2012). Does Family Make a Difference? Mid-Term Effects of a School/Home-Based Intervention Program to Enhance Reading Motivation. *Learning & Instruction*, 22 (2), 79-91. doi: [10.1016/j.learninstruc.2011.07.001](https://doi.org/10.1016/j.learninstruc.2011.07.001)

Villiger, C., Niggli, A., Wandeler, C., Watermann, R. & Kutzelnann, S. (2010). Multiple Ziele bei der Leseförderung: Befunde aus einer vergleichenden Interventionsstudie auf Klassenstufe 4 [Multiple objectives in promoting reading: Results of a comparative intervention study at grade four]. *Journal für Bildungsforschung Online*, 2, 153-194.

Wigfield, A., & Guthrie, J. T. (1997). Relations of children's motivation for reading to the amount and breadth of their reading. *Journal of Educational Psychology*, 89 (3), 420-432. doi:[10.1037/0022-0663.89.3.420](https://doi.org/10.1037/0022-0663.89.3.420)

Wild, E. & Remy, K. (2001). *Die Förderung selbstbestimmter Formen der Lernmotivation im Elternhaus und Schule [Fostering autonomous forms of learning motivation at home and at school]*. Arbeitsbericht an die Deutsche Forschungsgemeinschaft. Bielefeld/Germany, Abteilung Psychologie.

Wingard, L. & Forsberg, L. (2009). Parent involvement in children's homework in American and Swedish dual-earner families. *Journal of Pragmatics*, 41, 1576-1595. doi: [10.1016/j.pragma.2007.09.010](https://doi.org/10.1016/j.pragma.2007.09.010)

Yamamoto, Y. & Holloway, S. D. (2010). Parental Expectations and Children's Academic Performance in Sociocultural Context. *Educational Psychology Review*, 22, 189-214. doi: 10.1007/s10648-010-9121-z

Zellman, G. L. & Waterman, J. M. (1998). Understanding the impact of parent school involvement on children's educational outcomes. *Journal of Educational Research*, 91 (6), 370-380. doi: [10.1080/00220679809597566](https://doi.org/10.1080/00220679809597566)

Appendix

Please insert Table A about here

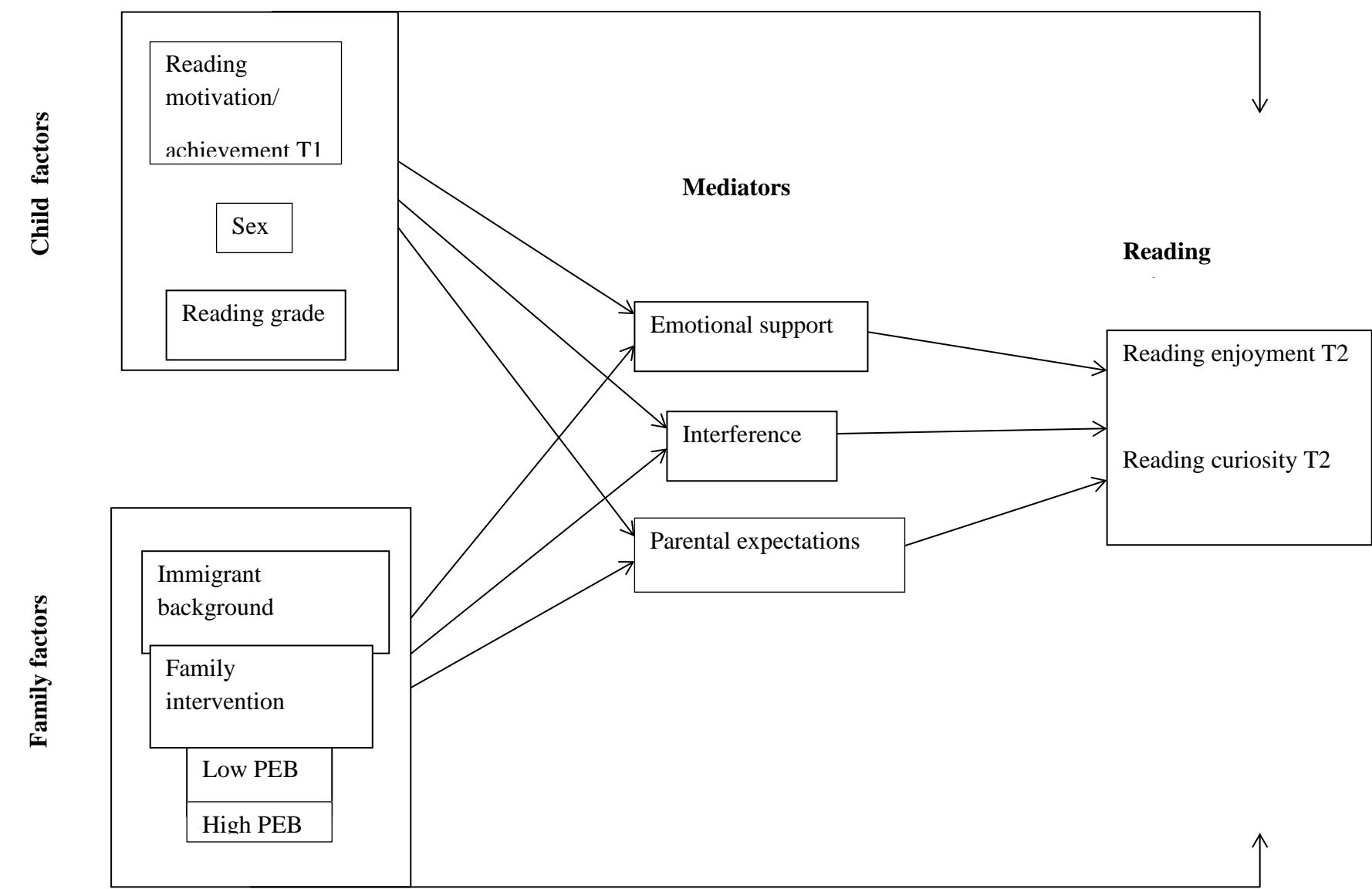


Fig. 1. Conceptual model underlying the analyses conducted in this study

Table 1
Means, Standard Deviations, and Correlations

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 Sex (1 = male)	.48	.50																
2 Immigrant backgrnd (=1)	.15	.36	.06															
3 Parental education: high	.27	.44	-.01	-.03														
4 Parental education: low	.43	.50	.00	.09*	-.53**													
5 Grade in reading	5.04	.63	-.13**	-.23**	.15**	-.17**												
6 Family intervention	.24	.43	-.01	-.05	-.01	.00	-.03											
7 Interference	2.18	.88	.07*	.03	-.09*	.09*	-.24**	.00										
8 Emotional support	4.19	.77	-.13**	-.12**	.01	-.01	.09**	.00	.17**									
9 Parental expectations	3.49	.83	-.03	.11**	.21**	-.13**	.22**	.05	-.09*	.04								
10 Reading enjoyment T1	3.22	.70	-.28**	.04	.05	-.05	.29**	.01	-.10**	.20**	.17**							
11 Reading curiosity T1	3.21	.66	-.05	.12**	-.13**	.09*	.03	.01	.04	.13**	.05	.49**						
12 Reading anxiety T1	2.30	.84	-.03	.19**	-.10**	.12**	-.26**	-.05	.19**	.01	-.04	-.04	.13**					
13 Reading achievement T1	67.44	17.78	-.13**	-.15**	.16**	-.17**	.61**	.00	-.20**	.05	.21**	.39**	.12**	-.27**				
14 Reading enjoyment T2	3.24	.72	-.32**	.06	.09**	-.10**	.28**	.06	-.11**	.23**	.17**	.58**	.23**	-.06	.32**			
15 Reading curiosity T2	3.19	.67	-.02	.15**	-.04	.07	-.01	.06	.06	.26**	.11**	.31**	.42**	.09**	.07*	.41**		
16 Reading anxiety T2	2.23	.82	-.01	.16**	-.11**	.14**	-.27**	-.01	.23**	.01	-.07	-.07*	.03	.42**	-.21**	-.09*	.14**	
17 Reading achievement T2	85.46	17.06	-.15**	-.07	.19**	-.19**	.58**	.02	-.23**	.05	.24**	.39**	.08*	-.25**	.83**	.37**	.08*	-.20**

Table 2
Predicting parental homework involvement and expectations

	Model 1								
	Interference			Emotional support			Parental expectations		
	B	sig	S.E.	B	sig	S.E.	B	sig	S.E.
Sex (0 = female, 1 = male)	.04		.05	-.15	***	.04	.01		.03
Immigrant background (=1)	-.06		.05	-.12	*	.05	.18	***	.05
Parental education: high	.06		.05	.00		.06	-.04		.04
Parental education: low	-.03		.05	-.02		.05	.15	**	.05
Grade in reading	-.26	***	.05	.03		.04	.24	***	.04
Family intervention	.00		.05	.01		.05	.09		.05
R^2	.08			.05			.12		

Note: b = standardized regression coefficient. * $p < .05$., ** $p < .01$., *** $p < .001$.

Table 3
Predicting reading enjoyment, reading curiosity, reading anxiety, and reading achievement

	Model 2			Model 3											
	Time 2 Outcome			Interference			Emotional support			Parental expectations			Time 2 Outcome		
	B		S.E.	B	sig	S.E.	B	sig	S.E.	B	sig	S.E.	B	sig	S.E.
<i>Reading enjoyment</i>															
T1 Reading enjoyment	.51	***	.04	-.05		.04	.15	**	.05	.10	*	.04	.49	***	.04
Sex (0 = female, 1 = male)	-.17	***	.03	.03		.05	-.11	**	.04	.03		.03	-.16	***	.03
Immigrant backgrnd (=1)	-.08	**	.03	-.05		.05	-.14	**	.05	.16	***	.04	.09	**	.03
Parental education: high	-.04		.03	.06		.05	.01		.06	-.04		.04	-.04		.03
Parental education: low	.02		.03	-.03		.04	-.02		.05	.15	**	.05	.01		.03
Grade in reading	.09	*	.04	-.25	***	.05	-.01		.04	.22	***	.04	.07		.04
Family intervention	.06		.04	.01		.05	.00		.05	.08		.04	.06		.03
Interference													-.08	*	.04
Emotional support													.13	***	.03
Parental expectations													.03		.03
R ²	.40			.09			.06			.13			.42		
<i>Reading curiosity</i>															
T1 Reading curiosity	.55	***	.05	.06		.04	.15	***	.05	.05		.05	.48	***	.05
Sex (0 = female, 1 = male)	.01		.05	.05		.05	-.14	***	.04	.01		.03	.05		.04
Immigrant backgrnd (=1)	.07	*	.03	-.07		.05	-.14	**	.05	.17	**	.05	.09	**	.03
Parental education: high	.06		.05	.06		.05	.00		.06	-.05		.04	.06		.04
Parental education: low	.05		.05	-.02		.05	.01		.05	.16	**	.05	.03		.05
Grade in reading	-.01		.04	-.27	***	.05	.02		.04	.24	***	.04	-.05		.04
Family intervention	.06		.05	.00		.06	.01		.05	.09		.05	.05		.04
Interference													-.03		.05
Emotional support													.26	***	.04
Parental expectations													.10	*	.04
R ²	.31			.09			.06			.12			.36		
<i>Reading anxiety</i>															
T1 Reading anxiety	.44	***	.05	.20	***	.05	.05		.05	.00		.04	.42	***	.05
Sex (0 = female, 1 = male)	.01		.04	.07		.05	-.15	***	.03	.01		.03	-.01		.04
Immigrant backgrnd (=1)	.06		.04	-.09		.05	-.12	**	.05	.17	***	.04	.07		.04
Parental education: high	.07		.04	.05		.05	.00		.06	-.04		.04	.07		.04
Parental education: low	-.02		.04	-.02		.04	-.02		.05	.15	**	.05	-.02		.04
Grade in reading	-.16	***	.04	-.21	***	.05	.04		.04	.24	***	.04	-.13	**	.04
Family intervention	.03		.05	.01		.05	.01		.05	.09		.05	.03		.05
Interference													.12	*	.06
Emotional support													-.02		.04
Parental expectations													-.03		.03
R ²	.30			.12			.04			.12			.31		
<i>Reading comprehension</i>															
T1 Reading comprehension	.73	***	.03	-.12	*	.05	-.02		.05	.09	*	.05	.72	***	.03
Sex (0 = female, 1 = male)	-.04		.02	.04		.05	-.16	***	.03	.01		.03	-.04		.02
Immigrant backgrnd (=1)	.05	*	.02	-.06		.05	-.12	*	.05	.17	***	.05	.04		.02

Parental education: high	-.03		.03	.05	.05	.00	.06	-.04		.04	-.03		.03	
Parental education: low	.06	*	.02	-.03		.04	-.02	.05	.15	**	.04	.05	*	.02
Grade in reading	.13	***	.03	-.19	**	.06	.05	.05	.19	***	.04	.12	***	.03
Family intervention	.04		.04	.00		.06	.01	.05	.09		.05	.04		.04
Interference												-.05		.03
Emotional support												-.01		.03
Parental expectations												.02		.03
<i>R</i> ²	.69			.09			.05		.13			.70		

Note: b = standardized regression coefficient. * $p < .05$., ** $p < .01$., *** $p < .001$.

Table 4

Specific indirect effects between family background and educational outcomes

	Reading enjoyment			Reading curiosity			Reading anxiety			Reading compr.		
	B	sig	S.E.	B	sig	S.E.	B	sig	S.E.	B	sig	S.E.
<u>Parental expectations</u>												
Immigrant backgrnd (=1)	.00		.01	.02		.01	.01		.01	.00		.00
<u>Interference</u>												
Immigrant backgrnd (=1)	.00		.00	.00		.00	.01		.01	.00		.00
<u>Emotional support</u>												
Immigrant backgrnd (=1)	-.02		.01	-.03	*	.01	.00		.01	.00		.00

Note: b = standardized regression coefficient. * $p < .016$ (Bonferroni corrected).

Appendix**Table A**

Comparison of means between immigrant and native students

	Immigrant students		Native students		ANOVA
	M	SD	M	SD	
Sex (1 = male)	1.55	0.50	1.47	0.50	F(1, 850)=2.90, <i>n.s.</i>
Parental education: high	0.22	0.41	0.26	0.44	F(1, 796)=0.77, <i>n.s.</i>
Parental education: low	0.55	0.50	0.43	0.50	F(1, 796)=5.82, <i>p</i> <.05
Grade in reading	4.69	0.67	5.10	0.61	F(1, 831)=44.87, <i>p</i> <.001
Family intervention	0.20	0.40	0.26	0.44	F(1, 850)=2.19, <i>n.s.</i>
Interference	2.24	0.86	2.17	0.88	F(1, 833)=0.60, <i>n.s.</i>
Emotional support	3.96	0.93	4.23	0.74	F(1, 832)=12.46, <i>p</i> <.001
Parental expectations	3.72	0.96	3.45	0.80	F(1, 781)=10.28, <i>p</i> <.01
Reading enjoyment T1	3.30	0.60	3.22	0.71	F(1, 850)=1.56, <i>n.s.</i>
Reading curiosity T1	3.40	0.55	3.19	0.67	F(1, 850)=11.31, <i>p</i> <.01
Reading anxiety T1	2.68	0.92	2.23	0.82	F(1, 849)=32.20, <i>p</i> <.001
Reading achievement T1	61.48	16.22	68.69	17.69	F(1, 845)=18.20, <i>p</i> <.001
Reading enjoyment T2	3.35	0.60	3.23	0.73	F(1, 832)=2.96, <i>n.s.</i>
Reading curiosity T2	3.43	0.56	3.15	0.67	F(1, 832)=18.77, <i>p</i> <.001
Reading anxiety T2	2.54	0.91	2.17	0.79	F(1, 832)=22.11, <i>p</i> <.001
Reading achievement T2	82.91	16.18	86.10	17.02	F(1, 828)=3.60, <i>n.s.</i>